carbon; and
a dopant in said semiconductor;
wherein said carbon limits outdiffusion of said dopant and said dopant is included in sufficient quantities to reduce a resistance of said semiconductor to less than approximately 4 Kohms/cm^2.

[2 (c2)]
The transistor in claim 1, wherein said dopant is included in a peak concentration of approximately 1 x 10^{20} cm^3 to 1 x 10^{21} cm^3.

[3 (c3)]
The transistor in claim 1, wherein said dopant comprises one of boron, aluminum, gallium, indium, and titanium.

[4 (c4)]
The transistor in claim 1, wherein said semiconductor further comprises silicon germanium.

[5 (c5)]
The transistor in claim 1, further comprising a wafer, wherein a first portion of said wafer includes said collector and a second portion of said wafer includes a shallow trench isolation region.

[6 (c6)]
The transistor in claim 5, wherein said semiconductor comprises a semiconductor layer over said collector and said shallow trench isolation region.

[7 (c7)]
The transistor in claim 5, wherein said semiconductor comprises a single crystal silicon germanium carbon material above said collector and a poly crystal silicon germanium carbon material above said shallow trench isolation region.

[8 (c8)]
The transistor in claim 1, wherein said carbon maintains said dopant within a central portion of said semiconductor.

[9 (c9)]
A semiconductor for use in a bipolar transistor, said semiconductor comprising:
carbon atoms; and
a dopant interacting with said carbon atoms,
wherein said carbon atoms limit outdiffusion of said dopant and said dopant is included in sufficient quantities to reduce a resistance of said semiconductor to less than approximately 4 Kohms/cm^2.

[10 (c10)]
The semiconductor in claim 9, wherein said dopant is included in a peak concentration of approximately 1 x 10^{20} cm^3 to 1 x 10^{21} cm^3.

[11 (c11)]
The semiconductor in claim 9, wherein said dopant comprises one of boron, aluminum, gallium, indium, and titanium.

[12 (c12)]
The semiconductor in claim 9, further comprising silicon germanium.

[13 (c13)]
The semiconductor in claim 9, wherein said carbon atoms maintain said dopant within a central portion of said semiconductor.

[14 (c14)]
A method of forming a bipolar transistor comprising:
forming a collector region in a wafer;
growing an epitaxial layer having carbon on said wafer, wherein said epitaxial layer has a semiconductor region above said collector region;
forming an emitter on said semiconductor region, wherein said emitter includes an insulator portion; and
doping said semiconductor region in sufficient quantities to reduce a resistance of said semiconductor to less than approximately 4 Kohms/cm^2,
wherein said carbon limits outdiffusion of said dopant within said semiconductor region.

[15 (c15)]
The method in claim 15, wherein said doping provides said dopant in a peak concentration of approximately 1×10^{20} cm^3 to 1×10^{21} cm^3.

[16 (c16)]
The method in claim 15, wherein said dopant comprises one of boron, aluminum, gallium, indium, and titanium.

[17 (c17)]
The method in claim 15, wherein said semiconductor region further comprises silicon germanium.

[18 (c18)]
The method in claim 15, wherein said carbon maintains said dopant within a central portion of said semiconductor region.

[19 (c19)]
The method in claim 15, wherein said growing of said epitaxial layer includes growing a material including a concentration of carbon which is less than approximately 3%.

[h3] Abstract of the Disclosure